

IN THE CLAIMS:

Claims 1 through 19 have been amended herein. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A steel body rotary drag bit for drilling a subterranean formation, comprising:
a steel bit body having a centerline and including a leading end having generally radially extending blades for contacting a formation during drilling, the steel bit body having a plurality of substantially arcuate surfaces, each substantially arcuate surface of the plurality at least partially defining a cutter pocket recess;
~~at least one cutting element pocket comprising a substantially arcuate surface and a substantially planar surface;~~
a plurality of support elements, each support element of the plurality being affixed to the steel bit body and having a substantially planar surface at least partially defining a cutter pocket recess;
a plurality of cutting element elements, each cutting element of the plurality being at least partially disposed within each of the at least one cutting element pocket, wherein the cutting element comprises a cutter pocket recess and having a substantially cylindrical body, a cutting face, and a substantially planar surface distal to the cutting face; and
wherein at least a portion of the substantially cylindrical body of each cutting element is directly secured to at least a portion of a substantially arcuate surface of the steel bit body, and wherein at least a portion of the substantially planar surface of each cutting element matingly engages at least a portion of the substantially planar surface of a support element of the plurality of support elements;
~~each of the at least one cutting element pocket comprises a support element affixed to the bit body and each of the at least one cutting~~

~~element pocket is configured to matingly engage at least a portion of the substantially planar surface distal to the cutting face of the cutting element disposed therein; wherein the support element forms at least the substantially planar surface of each of the at least one cutting element pocket.~~

2. (Currently Amended) The steel body rotary drag bit of claim 1, wherein ~~the each~~ support element of the plurality of support elements ~~each of the at least one cutting element pocket is~~ affixed to the bit body by at least one of welding, brazing, press-fit, and shrink-fit.

3. (Currently Amended) The steel body rotary drag bit of claim 1, wherein ~~the each~~ support element of the plurality of support elements ~~each of the at least one cutting element pocket is~~ sized and configured to support the cutting element against forces applied thereto during drilling.

4. (Currently Amended) The steel body rotary drag bit of claim 1, wherein ~~the each~~ cutting element of the plurality of cutting elements ~~disposed within each of the at least one cutting element pocket~~ comprises a polycrystalline diamond compact.

5. (Currently Amended) The steel body rotary drag bit of claim 1, wherein ~~the each~~ support element of the plurality of support elements ~~each of the at least one cutting element pocket~~ comprises steel or tungsten carbide.

6. (Currently Amended) The steel body rotary drag bit of claim 1, wherein ~~one or more each~~ support element of the plurality of support elements ~~at least one cutting element pocket~~ includes an aperture and is affixed to the bit body by way of an anchor element extending ~~therethrough~~ through the aperture.

7. (Currently Amended) The steel body rotary drag bit of claim 6, wherein the anchor element ~~of each of the one or more support element~~ is press-fit into a retention recess within the bit body.

8. (Currently Amended) The steel body rotary drag bit of claim 6, wherein the anchor element ~~of each of the one or more support~~ is deformed within at least one of the aperture of the support element and a retention recess in the drill bit.

9. (Currently Amended) The steel body rotary drag bit of claim 2, wherein ~~one or more support element of the at least one cutting element pocket forms more than one surface of the at least one cutting element pocket~~ at least a portion of the substantially cylindrical body of each cutting element of the plurality of cutting elements matingly engages at least a portion of a support element of the plurality of support elements.

10. (Currently Amended) The steel body rotary drag bit of claim 9, wherein ~~the one or more support element forming more than one surface of the at least one cutting element pocket is configured to contact at least a portion of the circumference of the cutting element disposed therein~~ the steel bit body further includes a plurality of retention recesses, each retention recess extending into the bit body from a substantially arcuate surface of the plurality of arcuate surfaces, at least a portion of each support element being disposed within a retention recess of the plurality of retention recesses.

11. (Currently Amended) The steel body rotary drag bit of claim ~~9~~10, wherein ~~one or more support element forming more than one surface of the at least one cutting element pocket forms substantially the entire cutting element pocket~~ the at least a portion of each support element disposed within a retention recess is affixed to the bit body within the retention recess.

12. (Currently Amended) The steel body rotary drag bit of claim ~~9~~10, wherein ~~one or more each support element of the plurality of support elements forming more than one surface of the at least one cutting element pocket is press fit into a retention recess of the plurality of retention recesses formed within the drill bit body.~~

13. (Currently Amended) The steel body rotary drag bit of claim 1, further comprising a plurality of secondary structure structures, each secondary structure being affixed to the steel drill bit body and at least partially disposed within a cavity positioned rotationally trailing ~~the~~ a support element of the plurality of support elements ~~one or more of the at least one cutting element pocket~~.

14. (Currently Amended) The steel body rotary drag bit of claim 13, wherein ~~the~~ each secondary structure of the plurality of secondary structures comprises tungsten carbide.

15. (Currently Amended) The steel body rotary drag bit of claim 1, wherein ~~one or more of the at least one cutting element pocket~~ each cutter pocket recess surrounds more than half of a cross-sectional circumference of ~~the~~ a cutting element disposed therein.

16. (Currently Amended) The steel body rotary drag bit of claim 15, wherein ~~one or more~~ each support element of the plurality of support elements ~~one or more cutting element pocket surrounding more than half of a cross-sectional circumference of the cutting element disposed therein~~ is affixed to the bit body by at least one of welding, brazing, press-fit, and shrink-fit.

17. (Currently Amended) The steel body rotary drag bit of claim 15, wherein ~~one or more~~ each support element of the plurality of support elements ~~one or more cutting element pocket surrounding more than half of a cross-sectional circumference of the cutting element disposed therein~~ includes an aperture and is affixed to the bit body by way of an anchor element extending ~~therethrough~~ through the aperture.

18. (Currently Amended) The steel body rotary drag bit of claim 15, wherein ~~one or more~~ each support element of the plurality of support elements ~~one or more cutting element pocket surrounding more than half of a cross-sectional circumference of the cutting element disposed therein~~ is configured to contact at least a portion of the circumference of ~~the~~ a cutting element of the plurality of cutting elements.

19. (Currently Amended) The steel body rotary drag bit of claim 18, wherein the steel bit body further includes a plurality of retention recesses, each retention recess extending into the bit body from a substantially arcuate surface of the plurality of arcuate surfaces, at least a portion of each support element being disposed within a retention recess of the plurality of retention recesses ~~one or more support element configured to contact at least a portion of the circumference of the cutting element forms substantially the entire cutting element pocket.~~

20. (Withdrawn) A method of manufacturing a steel body rotary drag bit, comprising: providing a steel bit body having a centerline and including a leading end having a plurality of generally radially extending blades for contacting a formation during drilling; forming at least one cutting element pocket, wherein forming each of the at least one cutting element pocket comprises:

forming a recess extending at least partially between the leading face and trailing face of at least one generally radially extending blade;

forming a retention recess that at least partially intersects the recess within the at least one generally radially extending blade;

forming a substantially arcuate surface and a substantially planar surface for matingly engaging at least a portion of a substantially planar surface of a generally cylindrical cutting element distal to the cutting face thereof; and

affixing a support element to the bit body by way of the retention recess and positioning the support element so as to form at least the substantially planar surface of the cutting element pocket;

disposing a cutting element within each of the at least one cutting element pocket, each cutting element having a substantially cylindrical body, a cutting face, and a substantially planar surface distal to the cutting face;

abutting the substantially planar surface distal to the cutting face of the cutting element against the substantially planar surface of the at least one cutting element pocket within which the cutting element is disposed.

21. (Withdrawn) The method of claim 20, further comprising affixing the generally cylindrical cutting element to each of the at least one cutting element pocket.

22. (Withdrawn) The method of claim 20, wherein affixing one or more support element of the at least one cutting element pocket to the bit body comprises deforming an anchor element therethrough.

23. (Withdrawn) The method of claim 20, wherein affixing one or more support element of the at least one cutting element pocket to the bit body comprises deforming an anchor element thereagainst.

24. (Withdrawn) The method of claim 20, wherein affixing one or more support element of the at least one cutting element pocket to the bit body comprises deforming an anchor element within the retention recess.

25. (Withdrawn) The method of claim 20, wherein affixing one or more support element of the at least one cutting element pocket to the bit body comprises at least one of welding, brazing, press-fitting, and shrink-fitting.

26. (Withdrawn) The method of claim 20, wherein affixing a support element to the bit body by way of the retention recess and positioning the support element so as to form at least the substantially planar surface of the cutting element pocket comprises positioning the support element so as to form substantially the entire cutting pocket.

27. (Withdrawn) A method of repairing a steel body rotary drag bit, comprising:
providing a steel bit body having a centerline and including a leading end having a plurality of generally radially extending blades for contacting a formation during drilling;
forming at least one cutting element pocket, wherein forming each of the at least one cutting element pocket comprises:

forming a recess extending at least partially between the leading face and trailing face of at least one of the plurality of generally radially extending blades; forming a retention recess that at least partially intersects the recess within the at least one generally radially extending blade; and forming a substantially arcuate surface and a substantially planar surface for matingly engaging at least a portion of a substantially planar surface of a generally cylindrical cutting element distal to the cutting face thereof; and affixing a support element to the steel bit body by way of the retention recess and positioning the support element so as to form at least the substantially planar surface of the cutting element pocket;

disposing a cutting element within each of the at least one cutting element pocket, each cutting element having a substantially cylindrical body, a cutting face, and a substantially planar surface distal to the cutting face;

abutting the substantially planar surface distal to the cutting face of the cutting element with the substantially planar surface of the at least one cutting element pocket within which it is disposed;

affixing the cutting element within the at least one cutting element pocket within which it is disposed;

drilling with the steel body rotary drill bit;

removing the cutting element from the at least one cutting element pocket within which it is disposed; and

replacing the cutting element of at least one of the at least one cutting element pocket with another cutting element.

28. (Withdrawn) The method of claim 27, wherein affixing one or more support element of the at least one cutting element pocket to the bit body comprises at least one of welding, brazing, press-fitting, and shrink-fitting.

29. (Withdrawn) The method of claim 27, wherein affixing the cutting element within the at least one cutting element pocket within which it is disposed comprises affixing a polycrystalline diamond compact within the cutting element pocket within which it is disposed.

30. (Withdrawn) The method of claim 29, wherein replacing the cutting element of at least one of the at least one cutting element pocket with another cutting element comprises affixing another polycrystalline diamond compact within the at least one of the at least one cutting element pocket cutting element pocket.

31. (Withdrawn) The method of claim 27, wherein replacing the cutting element of at least one of the at least one cutting element pocket with another cutting element comprises removing the support element of the at least one of the at least one cutting element pocket and replacing the support element with another support element.